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A description of the previously unknown female of *Symploce digitifera* (Blattodea: Ectobiidae: Blatellinae)

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ABSTRACT

The female of *Symploce digitifera* Rehn, 1922 and its ootheca are described and figured for the first time.

KEY WORDS: South Africa, cockroach, female description, micropterous.

INTRODUCTION

The genus *Symploce* Hebard, 1916 has a circumtropical distribution, with species present in the Afrotropical, Palaearctic, Australian, Oriental and Neotropical regions, and contains 65 described species (Roth 1984, 1985*a*, 1985*b*, 1985*c*, 1986*a*, 1986*b*, 1987*a*, 1987*b*; Wang & Che 2013). The African fauna consists of seven species groups (Roth 1986*b*, 1987*a*), containing in total 25 species, with the most recently described species being the cavernicolous *S. microphthalma* Izquierdo & Medina, 1992 from the Canary Islands. The species *S. digitifera* was described by Rehn (1922), based on macropterous males. Subsequently, Roth (1986*b*) placed it in the *pallens*-species group. The female of the species was unknown. Of the five species in this group, only females of *S. pallens* (Stephens, 1829), *S. macroptera* (Walker, 1868) and *S. incuriosa* (Saussure, 1899) have been described, all of which are macropterous (Roth 1986*b*). While identifying male specimens of live cultures of the genus *Symploce* in the Hope Entomological Collections, Oxford University Museum of Natural History (OUMNH), dissection of an unknown male specimen revealed it was identical to *S. digitifera*. Fortunately, this culture contained a large number of micropterous female specimens and their oothecae, both of which are herein described for the first time.

MATERIAL AND METHODS

All examined specimens belong to the culture of Mr D.J. Mann, deposited in the Hope Entomological Collections, OUMNH. The genitalia of several female specimens were dissected and macerated in 10% KOH at 70°C for 15 minutes, followed by subsequent immersion in acid alcohol and cleaning in 75% alcohol. Measurements were taken with a micrometer eyepiece. All images were taken using the Leica M165c with a Leica DFC490 camera, while stacked images were combined using Helicon Focus.

TAXONOMY

Family Ectobiidae

Symploce digitifera Rehn, 1922

Diagnosis: Recognised among congenerics by the stout and robust body; micropterous wing form; distinctly bicolorous body (Fig. 1) and trigonal supra-anal plate (Figs 4, 5).

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Female.

Description:

Measurements (ethanol-preserved specimens, in mm) (n = 5): Total body length: 13.59; pronotum length×width: 2.32×4.35; mesonotum/metanotum length: 3.00; tegmen length: 2.14; fore femur length: 2.60; mid femur length: 2.68; hind femur length: 3.18; fore tibia length: 2.04; mid tibia length: 2.24; hind tibia length: 3.16; fore tarsus length: 1.38; mid tarsus length: 1.90; hind tarsus length: 2.32; greatest width of abdomen: 5.54; length of abdomen: 7.78.

Coloration: Distinctly bicolorous: pronotum dull orange, abdomen black (Fig. 1); head dull orange, slightly darker than rest of body (Figs 2, 3); ocellar rudiments pale (Fig. 3); terminal segments of maxillary and labial palps black (Fig. 3); pronotum dull orange with or without 1+1 small, faint black bands on anterolateral portion (Fig. 1); mesonotum, metanotum and vestigial tegmina dull orange (Fig. 1); coxae basally black, gradually becoming yellowish brown distad (Fig. 2); trochanters, femora and tibiae yellowish brown (Fig. 2); dorsal aspect of abdomen black, often with dark orange suffusions proximally (Fig. 1); sternites medially yellowish brown, black towards lateral margin (Fig. 2); terminal sternites always black (Fig. 2); cerci black, punctuate, with numerous white spots.

Structure: Micropterous female. Body robust, stout (Figs 1, 2); eyes slightly smaller than male (Figs 2, 3); vertex with interocular width about as long as distance between antennal sockets (Figs 2, 3); ocelli reduced, present as pale patches on exoskeleton, closer to eyes than to each other (Figs 2, 3); scapus distally with an inconspicuous spine (sensory structure?) (Fig. 3); legs short and stout (Figs 1, 2); coxae and trochanters (Fig. 2) covered with piliform spinules; fore femur with type A_3 armature (Roth 2003): proximal portion with long and stout spines, gradually decreasing in size distally, terminating in 3 very long spines (Fig. 2); tibia strongly spinose, with piliform spinules intermixed with large spines; pulvilli on tarsomeres 1–4, tarsal claws symmetrical, unspecialised, arolium present, well developed; tegmina (Fig. 1) reduced to small, almost non-articulating subrectangular flaps, extending to basal portion of metanotum; hind wings absent; abdomen (Fig. 1) wide and oval in dorsal aspect; cerci short and stout, with 10 segments; supra-anal plate trigonal, apical region rounded (Figs 4, 5), surpassing hind margin of subgenital plate (Fig. 1), the latter being visible only in ventral view (Fig. 2).

Ootheca.

Description:

Measurements (in mm) (N=13): Maximum length × height × width: 5.7 × 3 × 2.

Structure: Simple, slightly curved ventrally (Fig. 6); keel inconspicuously serrate, with small teeth (Fig. 7); distal margin smooth; proximal margin notched at site of vaginal imprint (Fig. 6); usually with 18 eggs, arranged into two rows, embryonic heads facing dorsad.

Material examined: ♀ and ootheca: SOUTH AFRICA: *Eastern Cape*: Tsitsikamma Coastal National Park (34°01'22"S 23°53'12"E), 06.ix.2003, collected from vegetation at night, coll. D.J. Mann.

DISCUSSION

Symploce digitifera is a unique member of the *pallens*-species group, as it is the only species exhibiting sexual dimorphism with respect to wing development. However, this

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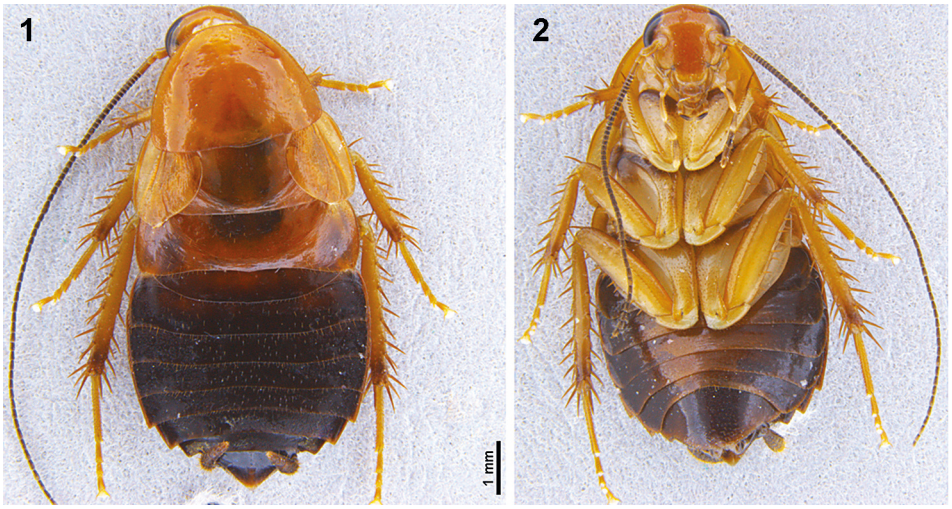
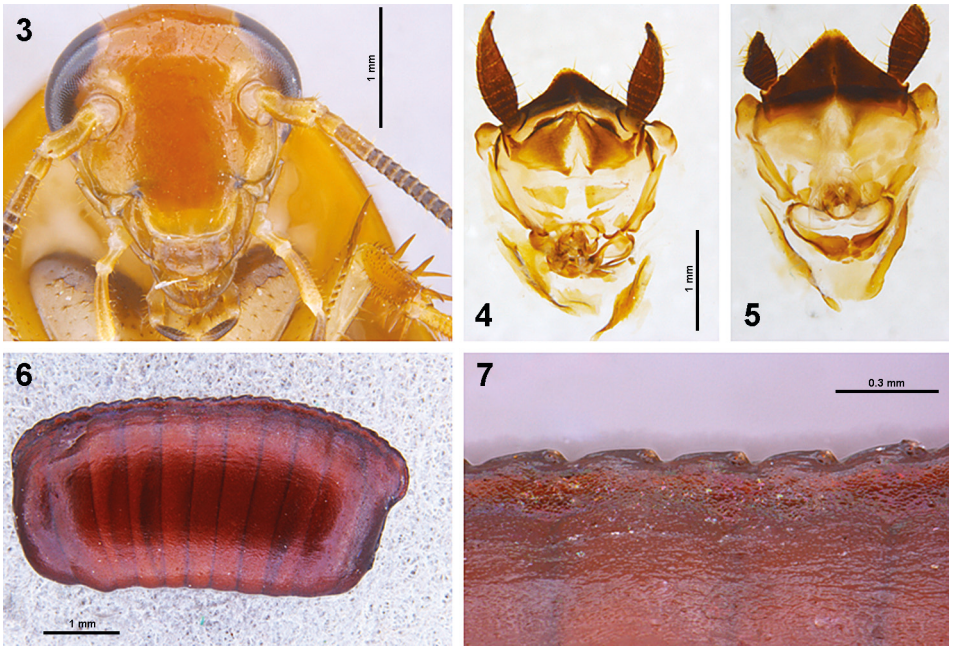


Figs 1, 2. Micropterous female of *Symploce digitifera*: (1) dorsal and (2) ventral views.



Figs 3–7. *Symploce digitifera* micropterous female (3–5) and ootheca (6, 7): (3) dorsum of head; (4) supra-anal plate and paraprocts, ventral view; (5) supra-anal plate, dorsal view; (6) ootheca, lateral view; (7) close-up of keel of ootheca, lateral view.

is an autapomorphic trait and thus should not be considered as a useful morphological character in a future phylogenetic study on the genus *Symploce*.

Roth (1986*b*), based on male genitalia, suggested that the most similar species to *S. digitifera* is *S. macroptera*. However, the supra-anal plate of *S. digitifera* is reminiscent

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of that of *S. incuriosa*, *S. natalensis* and *S. pallens*, all characterised by trigonal supra-anal plates with rounded apices. Even though the supra-anal plate of female *S. macroptera* has never been illustrated, Roth (1986*b*) describes it as trigonal with apex distinctly invaginated. Accepting Roth's classification of the *pallens*-species group, it is possible that in *Symploce,* although female genitalia are sufficiently variable to permit species-level identification, they may not always be reliable indicators of interspecific relationships.

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